CLAIMS

WHAT IS CLAIMED IS:

1. A method of detecting a satellite signal having a noise frequency component and a service frequency component, said method comprising:

establishing at least a first threshold value;

developing a first value indicative of a noise frequency component, and a second value indicative of a service frequency component from the satellite signal;

deriving a difference signal value from said first and second values;

comparing the difference signal value with said at least a first threshold value; and

generating a first output if the difference signal value differs from said at least a first threshold value in a predetermined manner.

2. The method as recited in Claim 1 wherein said noise frequency component and said service frequency component are obtained by bandpass filtering portions of said satellite signal.

3. The method as recited in Claim 2 wherein said step of deriving a difference signal value comprises the steps of:

inverting one of said first and second values to obtain an inverted value; and

summing said inverted value with the other of said first and second values to obtain a value indicative of the difference between said first and second values.

4. The method as recited in Claim 1 wherein the step of generating a first output further comprises the step of activating a peripheral device.

5. The method as recited in Claim 3 further comprising the steps of:

establishing a second threshold value different from said first threshold value;

comparing the difference signal value with said second threshold value; and

generating a second output if the difference signal value differs from said second threshold value in a predetermined manner.

6. The method as recited in Claim 5 wherein the step of generating a second output further comprises the step of commanding a user interface to indicate that the satellite signal is degrading.

7. The method as recited in Claim 6 wherein the step of generating a first output value further comprises commanding a user interface to indicate that the satellite signal has been lost.

8. The method as recited in Claim 5 wherein the step of generating a second output further comprises the step of activating a peripheral device.

9. The method as recited in Claim 8 wherein the step of generating a first output further comprises activating a second peripheral device.

10. The method as recited in Claim 1 further comprising the step of, in response to at least said first output, generating a user interface having a plurality of options for increasing the power of said service frequency component.

11. The method as recited in Claim 2 wherein said step of deriving a difference signal value comprises the steps of:

converting the noise frequency component to a noise frequency voltage value which is proportional to the power level of the noise frequency component;

converting the service frequency component to a service frequency voltage value which is proportional to the power level of the service frequency component;

inverting one of said voltage values to obtain an inverted voltage value; and

summing the inverted voltage value with the other of said voltage values to output a signal value representative of the difference in the power levels of said components.

12. The method as recited in Claim 1 wherein said noise frequency component comprises at least predominantly noise signals, and wherein said service frequency component comprises at least predominantly service signals.

13. The method as recited in Claim 12 wherein said satellite signal comprises a plurality of staggered transponder signals having differing characteristics, and wherein said service frequency component is derived from a band of frequencies common to at least a first transponder signal having one characteristic, and a second transponder signal having a different characteristic.

14. The method as recited in Claim 12 wherein said satellite signal comprises a plurality of transponder signals having different characteristics, and where the steps of developing a first value comprises the step of a developing said first value from a transponder signal having a same characteristic as that of the transponder signal being processed by a receiving device.

15. The method as recited in Claim 14 wherein the characteristics comprise alternate polarizations, further comprising the steps of utilizing a first filter characteristic corresponding to a transponder having a first polarization when said receiving device is processing a transponder signal having that polarization, and utilizing a second filter characteristic corresponding to a transponder having a second polarization when said receiving device is processing a transponder signal having that polarization.

16. The method as recited in Claim 15 wherein the filter characteristic is selected by providing a selectable bandpass filter, and selecting the desired filter characteristic by means of a select signal.

17. The method as recited in Claim 16 wherein said selectable bandpass filter comprises a tunable filter.

18. The method as recited in Claim 16 wherein said selectable bandpass filter comprises a plurality of individual filters, and wherein one of said plurality is made effective in response to said select signal.

19. The method as recited in Claim 1 wherein said first threshold is selectable.

20. The method as recited in Claim 1 wherein said first threshold is adaptive.

21. The method as recited in Claim 5 wherein said first threshold is selectable.

22. The method as recited in Claim 5 wherein said first threshold is adaptive.

23. A method of monitoring the strength of a received satellite signal presented to a decoder, said signal having at least one noise component and at least one signal component, said method comprising:

deriving from said noise and signal components a derived signal value;

comparing said derived signal value to at least one predetermined value; and

generating an output if said derived signal value differs from said predetermined value in a predetermined manner.

24. The method as recited in Claim 23 wherein said derived signal value comprises a difference signal value, said predetermined value comprises a predetermined threshold, and wherein the step of comparing further comprises comparing said difference signal value to said predetermined threshold.

25. The method as recited in Claim 24 wherein the step of generating an output further comprises generating a visual or aural warning to a user via a user interface.

26. The method as recited in Claim 25 further comprising the step of prompting the user to select from a menu of options presented by said user interface.

27. The method as recited in Claim 26 wherein said user interface comprises a screen image on a videoscreen.

28. The method as recited in Claim 24 wherein said method may be carried out whether or not said decoder is operating.

29. A system for receiving a satellite signal having at least one at least predominantly noise component and at least one at least predominantly signal component, said system comprising:

a satellite receiving antenna and low noise block;

logic in communication with said low noise block for processing said signal components to obtain a derived signal value and comparing said value to a predetermined threshold; and

a user interface linked to said logic and at least one external device and activated when said derived signal value differs from said predetermined threshold in a predetermined manner.

30. The system as recited in Claim 29 wherein said user interface provides a warning when said comparison indicates that satellite signal lock has been lost.

31. A system for detecting a satellite signal, said system comprising:

at least a first filter that isolates a predominantly noise frequency component from said satellite signal;

at least a second filter that isolates a predominantly service frequency component from said satellite signal;

circuits that derive a value indicative of a difference between the power levels of said noise frequency component and said service frequency component, to output a difference value; and

circuits that determine whether said difference value is greater or less than a first threshold value.

32. The system as recited in Claim 31 further comprising circuits that determine whether the difference value is greater than a second threshold value.

33. The system as recited in Claim 32 wherein said first threshold value further comprises a value representing a minimum signal level for acceptable operation of a receiver.

34. The system as recited in Claim 33 wherein said second threshold value further comprises a value chosen to represent a signal level greater than said minimum signal level.

35. The system as recited in Claim 32 wherein the system further comprises:

a satellite antenna;

a satellite signal decoder;

a link for connecting the antenna to the decoder; and

wherein the first filter, second filter, and circuits are interposed between the antenna and the decoder and in a path which is parallel to said link.

36. The system as recited in Claim 35 wherein the system further comprises at least one radio frequency detector for converting at least one of said components into voltage level values, one of said at least one detectors outputting a voltage which is proportional to the average power present in the noise frequency signal.

37. A system for receiving a satellite signal from a satellite, the system comprising:

a satellite antenna;

a subsystem that detects the satellite signal including a plurality of filters that isolate components indicative of the signal, logic that calculates a difference signal level from the components, at least one comparator that determines whether the difference signal level is greater than a threshold level; and

a satellite signal decoder linked to the satellite dish antenna by the subsystem.

38. The system as recited in Claim 37 wherein said threshold level is manually adjustable.

39. The system as recited in Claim 38, wherein said threshold level is downloadable via said satellite.

40. An accessory device for use with a satellite receiving station, said device comprising:

at least one filter that isolates a predominantly service frequency component from a satellite signal received in said receiving station;

at least a second filter that isolates a predominantly noise frequency component from said satellite signal; and

circuits for determining a power value for the outputs of said first and second filters;

at least one detector that determines whether a difference level derived from the outputs of said power determining circuits is above or below a threshold.

41. The device of Claim 40 further comprising logic in communication with said threshold detector, said logic triggering a peripheral device.

42. The system as recited in Claim 41 wherein said peripheral device comprises a user interface generator.